

National Park Service  
U.S. Department of the Interior

Northeast Region  
Boston, Massachusetts



## **Significant Natural Resources of the Brewster Island Cluster: Boston Harbor Islands National Park Area**

Technical Report NPS/NER/NRTR--2005/024



**ON THE COVER**

Outer Brewster Island

Photograph by Sherman Morss, Jr.

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# **Significant Natural Resources of the Brewster Island Cluster: Boston Harbor Islands National Park Area**

Technical Report NPS/NER/NRTR—2005/024

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October 2005

U.S. Department of the Interior  
National Park Service  
Northeast Region  
Boston, Massachusetts

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Please cite this publication as:

Foley, M. K. October 2005. Significant Natural Resources of the Brewster Island Cluster: Boston Harbor Islands National Park Area. Technical Report NPS/NER/NRTR—2005/024. National Park Service. Boston, MA.

## Table of Contents

	Page
List of Tables .....	iv
List of Figures.....	iv
List of Appendices.....	iv
Introduction.....	1
Geology.....	4
Vegetation History.....	5
Vascular Plants and Vegetation Communities.....	6
Lichens and Bryophytes.....	8
Intertidal Zone.....	9
Marine Mammals.....	10
Birds.....	11
Macrolepidoptera and Other Insects.....	14
Acknowledgments.....	15
Literature Cited.....	16

**List of Tables**

	Page
Table 1. Number of documented species for the Brewster island cluster based on records in NPSpecies (2005) from surveys that include specific locations for documented species .....	3
Table 2. Summary information for the Brewster island cluster. American oystercatcher, common eider, glossy ibis, snowy egret, and black-crowned night heron all nest or forage on these islands .....	13

**List of Figures**

Figure 1. Boston Harbor Islands national park area consists of 34 islands and peninsulas within 128 sq. kilometers (50 sq. miles) of Massachusetts Bay.....	2
Figure 2. Outer Brewster Drumlin.....	4
Figure 3. A maritime shrub community on Outer Brewster Island .....	7
Figure 4. Remnant of homestead surrounded by staghorn sumac on Calf Island .....	7
Figure 5. Mosses growing on boulders on Calf Island .....	8
Figure 6. Rocky bedrock and boulder intertidal on Outer Brewster Island .....	9
Figure 7. Snowy egrets, great egrets, black-crowned night herons, and glossy ibis perch on staghorn sumac on Outer Brewster Island .....	12

**List of Appendices**

Appendix 1. Species Lists for the Brewster Island Cluster .....	19
Appendix 2. Geomorphic Maps of Middle Brewster and Outer Brewster Islands.....	38
Appendix 3. Geomorphic Maps of Green, Little Brewster, and Little Calf Islands.....	39
Appendix 4. Geomorphic Map of Great Brewster Island .....	40
Appendix 5. Geomorphic Map of Calf Island .....	41

## Introduction

Boston Harbor Islands National Recreation Area is a new and developing national park (see Figure 1). Established in 1996 and incorporating the Boston Harbor Islands State Park, the legislated purpose is 3-fold: to preserve and protect a drumlin island system within Boston Harbor, along with associated natural, cultural, and historic resources; to tell the islands' individual stories and enhance public understanding and appreciation of the island system as a whole; and to provide public access to the islands for education, enjoyment, and scientific and scholarly research (Boston Harbor Islands General Management Plan 2002).

The 34 islands of the national park area range in size from less than 0.1 to 105 hectares (1 to 274 acres), and together cover 600 hectares (1600 acres) of land within the 128 square kilometers (50 square miles) of Boston Harbor. Many of the islands are recognized as being a unique palimpsest with layers of coastal mud, sand, and gravel overlying glacial sediments resulting from Ice Age (Pleistocene) deposition of drumlins whereas, other islands such as Outer and Little Brewster Islands are rock outcrops.

All of the islands have a long history of human uses and occupation, and almost every upland habitat in the park bears the signs of human impact in buildings, roads, forts, pathways, old quarry and spoil sites, seawalls, ruins, picnic grounds, campsites, and cultivated fields, resulting in the proliferation of introduced plants and the erosion and compaction of soils (Elliman 2005; Richburg and Patterson 2005).

The islands are slowly being claimed by natural forces of storms, waves, sea level rise and tidal processes, as most of the human activities have now ceased or are greatly diminished. Today the Boston Harbor Islands are a rare example of relatively undisturbed natural areas at the edge of a major urban center. The natural resources are largely unexplored. Because of their close proximity to Boston and increased efforts through the Boston Harbor Islands Partnership to enhance transportation links between the mainland and the islands, they are also becoming more accessible to scientists, students, and naturalists in the discovery of the diversity of these islands. The discovery process has already begun with the systematic inventory of the vascular plants, bryophytes, lichenized fungi, and vertebrate fauna of the islands which is now completed or currently underway.

We now know that the park provides habitat for nesting seabirds, harbor seals, more than 70 species of terrestrial birds, and state-listed plants. By its climate, configuration, assemblage of natural, geologic, cultural, and historic features, and proximity to a major metropolitan area, the Boston Harbor Islands system offers a tremendous resource (Table 1).

Subdivision of the coast based on modifying phenomena is a useful practice for the purposes of understanding physical features, island dynamics, floristic differences and other aspects of the biogeography of the islands. Proximity of islands to wind and salt spray and other storm processes forms a natural clustering of the islands. Ecologically there are three recognized clusters of islands: 1) the most sheltered islands found in Hingham Bay including Langlee, Sarah, Button, Worlds End, Grape, Bumpkin, and a few others, 2) the inner islands or the

Dorchester Bay islands and Quincy Bay islands with more well developed soils and greater habitat diversity that have historically been the most heavily used and visited, and 3) the outer islands, often referred to as the Brewsters, which are the outer-most islands and the most heavily influenced by the sea (Outer Brewster, Great Brewster, Middle Brewster, Little Brewster, Calf, Little Calf, Green, and The Graves). The outer islands are the least affected by human activity, currently and historically and characterized by shallow rocky soils and often steep cliffs with low herbaceous vegetation.

This report is the first in a series that will assemble and describe the unique and significant characteristics of the natural environment of each of the island clusters as they are currently known. Ongoing research that will contribute to our understanding of these unique resources will also be described. This report provides a brief synthesis of the natural history of the outer islands comprising the Brewster island cluster, including the geology; the status of the flora, including vascular plants, lichens and bryophytes, and marine algae; and the status of the fauna, including marine mammals, birds, macrolepidoptera and other insects. An inventory of mammals, amphibians and reptiles, insects and other invertebrates on the Boston Harbor Islands is ongoing at the writing of this report.

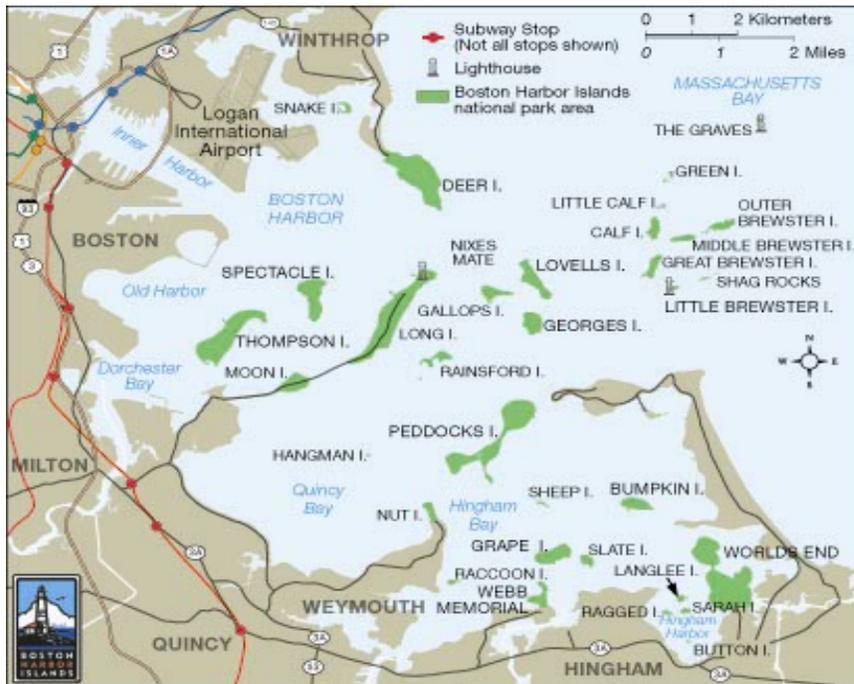


Figure 1. Boston Harbor Islands national park area consists of 34 islands and peninsulas within 128 sq. kilometers (50 sq. miles) of Massachusetts Bay.

Table 1. Number of documented species for the Brewster island cluster based on records in NPSpecies (2005) from surveys that include specific locations for documented species. See Appendix 1 for a complete list of all species documented. *Note: All species of fungi in this table are lichens.*

<i>Island Name</i>	<i>Category</i>	<i>Number of Species</i>
<i>Calf</i>	Bird	29
	Fungi	23
	Insect	4
	Non-vascular Plant	4
	Vascular Plant	91
<i>Great Brewster</i>	Bird	40
	Fungi	25
	Insect	34
	Non-vascular Plant	5
	Vascular Plant	107
<i>Green</i>	Bird	7
	Fungi	7
<i>Little Brewster</i>	Fungi	25
	Vascular Plant	39
<i>Little Calf</i>	Bird	6
	Fungi	1
	Vascular Plant	3
<i>Middle Brewster</i>	Bird	8
	Fungi	17
	Insect	8
	Non-vascular Plant	1
	Vascular Plant	42
<i>Outer Brewster</i>	Bird	21
	Fungi	24
	Insect	1
	Non-vascular Plant	6
	Vascular Plant	82
<i>The Graves</i>	Fungi	5

## Geology

The current geology of the Boston Harbor Islands is the result of long periods of glaciation during the Pleistocene, the time period that spanned from 1.8 million to ~10,000 B.P. It was during the Pleistocene that the most recent episodes of global cooling, or ice ages, has taken place. Much of the world's temperate zones were alternately covered by glaciers during cool periods and uncovered during the warmer interglacial periods when the glaciers retreated.

The core of many of the islands exposed by glacial retreat are drumlins (e.g., Great Brewster), long, asymmetrical glacial formations, composed of unconsolidated glacial sediment of till or reworked till (Figure 2.). As the Holocene begins about 10,000 B.P. and the glaciers melt, sea levels rose, isolating the islands. The drumlin islands continue to be modified by natural coastal processes with the rate of erosion and shoreline recession related to wave energy, exposure to storms, extent of coastal vegetation, nearshore bathymetry, sediment composition, meteorological effects, and other factors (Sunamura 1983; FitzGerald et al. 2003). Some of the islands of the Brewster island cluster are formed from bedrock outcrops and capped by thin till veneers. These islands are fronted by boulder and gravel beaches and are less sensitive to erosional forces (e.g., Outer and Little Brewster Islands).

The drumlin-type islands of the Brewster island cluster, with proximate exposure to the ocean, tend to erode in the northeastern quadrant and are depositional to the southwest, thereby expanding the gravelly sandy environments of the inner harbor. More protected islands are fetch restricted in their pattern of erosional response but there are many causal factors driving shoreline change and threats to historically important upland habitat and cultural resources (FitzGerald et al. 2003). Today these islands are diminishing in size due to rising sea level and coastal erosion (FitzGerald et al. 2003). Appendices 2-5 are geomorphic maps depicting the geologic landforms of the Brewster island cluster.



Figure 2. Outer Brewster Drumlin (Hull Lifesaving Station Photo)

## Vegetation History

Although much is known about the cultural history of the Boston Harbor Islands, an understanding of the natural history of the islands is only recently being understood and appreciated. The vegetation of the islands has changed over time in response to variations in climate and to rising sea level. As the glaciers retreated northward, tundra vegetation was replaced by spruce/fir forests, then pine and eventually oaks and hickories (Davis 1983). Although many of the inner islands were probably forested, shallow soils and exposure to winds suggest that the Brewster island cluster only supported low shrubs, grasses, and trees with espalier forms similar to today's vegetation (Richburg and Patterson 2005).

Pollen analysis, a technique used to reconstruct past vegetation and climatic regimes, was performed on a sediment core from a brackish wetland on Calf Island, a small windswept island in the Brewster cluster. Analysis revealed that grasses dominated the landscape since before the 1600s (Patterson et al. 2005). This seems appropriate as the outer harbor's harsher climatic conditions precluded forest dominated islands, whereas the inner harbor's more sheltered environment and deeper soils allow forests to develop. Then as now, the outer islands of the Brewster island cluster are dominated by grasses and sumac.

Sea level had not reached its present level and many islands were still connected to the mainland when Native peoples began to populate the Boston area. Archeological evidence documents the extensive use of the Boston Harbor Islands for fishing, shellfishing, shell collecting and later for agricultural purposes during the Archaic and Woodland prehistoric periods (8,000 B.P. to 1500 A.D.) (Luedtke 1980). Although the inner islands were used more by Native peoples, it seems that of the outer islands, only Calf Island was used prior to European settlement. Paleo Indian sites on Calf Island were found to include cooking pits and middens with nutshell fragments, kernels of corn, and charred oak, birch, maple, hickory, ash and conifer wood fragments (Luedtke 1980). But a lack of agricultural pollen indicators found in sediments of recent centuries indicates that there was little Native American agricultural activity on Calf Island (Patterson et al. 2005) and probably not among any islands of the Brewster cluster.

The most dramatic changes in the vegetation of the islands began with the period of European colonization during the 1600s. Like most of the Boston area the Boston Harbor Islands were heavily used for grazing, farming, and logging, with reports that as early as 1635 there were shortages of wood on the mainland (Richburg and Patterson 2005). The appearance of sorrel (*Rumex*), which is an indicator of grazing suggests that livestock was grazed on Calf Island and perhaps other islands in the 18<sup>th</sup> and 19<sup>th</sup> centuries and disappearance of sorrel pollen evidences the cessation of grazing in the 20<sup>th</sup> century. Abundant charcoal in prehistoric sediments suggests that fires probably set by humans were common on Calf Island (Patterson et al. 2005).

During the 19<sup>th</sup> Century use of the Boston Harbor Islands began to shift from agricultural uses to more recreational uses. Several authors, among them Emerson in 1878 and Frederick Law Olmsted in 1887, lament the lack of trees on the Boston Harbor Islands suggesting that more trees would improve the aesthetic appeal of the islands (Richburg and Patterson 2005). The Metropolitan Parks Commissioners remarked in 1893 that if the islands were more appealing they might bring more tourist dollars to the region.

## Vascular Plants and Vegetation Communities

Elliman (2005) recently surveyed the flora of the islands in the park. He found an astonishing 521 native and naturalized plant species in 99 plant families on the 32 islands surveyed. Of this total, 229 or 44% are non-native. Elliman reports that for many of the islands as much as 50% of the flora is not native to Massachusetts, having been either introduced deliberately or accidentally through unintended transport pathways such as from national and international shipping via air, truck, or ship traffic or by other human transport means.

Predictably, the larger islands which support greater habitat diversity have the highest species diversity. These islands were most heavily used for cultivation in the past, which accounts for the large number of non native species found there (Elliman 2005). The outer most islands (Calf, Great Brewster, Middle Brewster and Outer Brewster) have far fewer species per unit area than those closer to the mainland. Lack of diversity on the islands of the Brewster cluster is influenced by distance from the mainland, seed sources, and exposure to wind and salt spray, and lower habitat diversity which has resulted in a slower recovery from past uses (Elliman 2005). Elliman (2005) reports greater numbers of vascular plant species on the larger islands of Calf at 90 species, Great Brewster at 108, Middle Brewster at 40, and Outer Brewster at 84. Whereas, The Graves has only 1 species and Little Calf has only 3. These two islands are small outcrops and are heavily exposed to wind and wave action.

Several species which are rare in Massachusetts are found on the Brewster island cluster. Seaside angelica (*Angelica lucida*) which is on the state's watch list grows on beaches, salt marshes, and rocky shorelines from Labrador to Long Island (Gleason and Cronquist 1991). Elliman (2005) documented three populations on the upper edges of brackish marshes on Calf Island. Hernandez (1976) also found this species on Little Brewster Island. Rich's sea-blite (*Suaeda richii*), another watch list species was identified by Hernandez on Calf and Great Brewster Islands. Elliman (2005) reports that although the native flora constitutes only 50% of the plant populations on the islands, recovery of the native flora is very evident among the inner islands. He is less optimistic about the outer islands and feels that recovery of the native flora will be slow on the Brewster island cluster because of harsh conditions. Over time these islands should also become more diverse, although perhaps never approaching the plant species richness found at the more protected inner islands (Elliman 2005).

Elliman describes three plant communities found on the Brewster island cluster. The maritime shrub community is found on all but the most exposed of the Boston Harbor Islands (e.g. Hangman, Green and Little Calf). Elliman describes this community where it occurs on the outer islands as sumac "forests." It is dominated by staghorn sumac (*Rhus hirta*) with few other shrubs or herbs (Figures 3 and 4). Also found on the outer islands are the maritime and the erosional rock cliff communities which can exist despite harsh winds and salt spray. Plants found growing in these communities include black mustard (*Brassica nigra*) and nodding smartweed (*Polygonum lapathifolium*). The erosional rocky cliff community supports only a few plant species and is found on the erosional cliff faces of islands such as Great Brewster.



Figure 3. A maritime shrub community on Outer Brewster Island. (Nove Photo)



Figure 4. Remnant of a homestead surrounded by staghorn sumac on Calf Island.

## Lichens and Bryophytes

Lichens are stable, consistent and identifiable combinations between a fungus and an algae. They have been described as "dual organisms" because they are symbiotic associations between two (or sometimes more) entirely different types of microorganism.

There are an estimated 13,500 to 17,000 species of lichens, extending from the tropics to the Polar Regions (LaGreca et al. 2005). Some of them grow on the bark of temperate trees or as epiphytes on the leaves of trees in tropical rain forests. In addition, lichens are well-known indicators of air pollution, with sensitive species being replaced by more tolerant ones as air pollution levels change. All these features make lichens interesting and significant in environmental terms.

During 2001 and 2002 a lichen baseline inventory was conducted (LaGreca et al. 2005). The Boston Harbor Islands lichen and bryophyte flora (cryptogams) is particularly rich because the islands are represented by two major floristic elements, the coastal plain and the rocky shore maritime. Of the islands surveyed, four islands or island clusters are notable for their unique lichen flora. For lichens, these include the northern spit of Thompson's Island, the isthmus between Middle Head and East Head on Peddocks, and some on the rocky shores of Calf, Middle Brewster, and Outer Brewster. For both bryophytes and lichens, these include the Hingham Harbor islands and peninsula of Langlee, Ragged and Worlds End. Although found in Maine and New Hampshire, the rocky shore lichen *Caloplaca verruculifera* identified by LaGreca et al. (2005) represents the southernmost collection of this species. These well-developed orange *Caloplaca* zones on Calf, Middle Brewster and Outer Brewster thus warrant special protection.



Figure 5. Mosses growing on boulders on Calf Island.

## Intertidal Zone

With a mean tidal range of about 3m (10.0ft) and a spring range of 3.4m – 3.7m (10.4ft -11.0 ft.), the size of the Boston Harbor Islands fluctuates greatly depending on the tide, affording a large intertidal zone abundant with natural marine biota. The intertidal zone warrants special attention as a biotic environment of the Brewster island cluster.

An inventory of the substrate and biota of the intertidal zone for 21 of the 34 islands was conducted from 2002 to 2003. Included in this inventory were four from the Brewster island cluster: Outer Brewster, Little Brewster, Great Brewster and Calf Island (Bell et al. 2005). Outer and Little Brewster Islands, two of the more exposed islands are dominated by rocky substrate and are the only islands of the Boston Harbor Islands being greater than 50% bedrock and boulder, with the other islands of the Brewster cluster also having a high percentage of rock and boulder mix (Bell et al. 2005; Figure 6). The biota (algae and marine invertebrates) associated with this rocky substrate and the high energy environment was found to be markedly different than the more protected inner islands, where the substrate had higher percentages of silts, sands and mud. Among all of the Boston Harbor Islands surveyed, the most seaweed taxa were recorded on the rocky islands of Calf and Little Brewster and the rocky areas of Rainsford. Lovell's and Calf Islands had the highest number of invertebrate taxa (Bell et al. 2002).



Figure 6. Rocky bedrock and boulder intertidal on Outer Brewster Island.

## Marine Mammals

Several species of marine mammals are found using the islands or are observed from them. Two notable species are the harbor seal (*Phoca vitulina*) and the humpback whale (*Megaptera novaeangliae*).

The harbor seal is the most widely-distributed pinniped, inhabiting temperate and subarctic coastal areas on both sides of the north Atlantic and north Pacific Oceans. They are year round inhabitants of the coastal waters of Maine and the Canadian Maritime Provinces (Katona et al. 1993) and are seen seasonally along the Massachusetts and Rhode Island coasts from September to late May (Schneider and Payne 1983). Recent reports indicate that the interval spent in more Southern New England waters has increased (Barlas 1999). In the western North Atlantic breeding and pupping normally occur in the northern waters of Maine and New Hampshire. Concentrations of harbor seals haul out at Green and Little Calf Islands. Lovell's and Little Brewster Islands are occasionally used as well. Most of this activity takes place in winter on the out-going tides. Hauling out areas used by seals could change over time, therefore periodic updates are necessary (Bell et al. 2002).

Humpback whales are listed as a federally endangered species under the Endangered Species Act. Humpback whales once numbered an estimated 125,000, but whaling drastically reduced the population. Today humpbacks number approximately 5,000 to 7,500. They are found all over the world, migrating annually from the tropics to polar regions. They are found during spring, summer and fall most often around the sloping sides of the banks and ledges of the Gulf of Maine, Georges Bank and the continental shelf, south of the Boston Harbor Islands. They have often been seen from the Brewster island cluster and occasionally wander into the inner harbor. They have only one known predator, the orca whale (*Orcinus orca*); however, whale populations are threatened by ship traffic and sometimes become entangled in fishing nets.

## Birds

Avian ecologists recently surveyed the breeding birds on 26 of the Boston Harbor Islands and were surprised at the diversity of birds nesting in proximity to the highly urbanized Boston metropolitan area (Paton et al. 2005). A cormorant rookery has existed on the Brewster island cluster for many years, moving their major nesting area from Shag Rocks to Middle Brewster (Andrew 1990), with the total population remaining fairly stable (Hatch 1984).

Although major gull and cormorant rookeries are found on Calf and Middle Brewster Islands, and Shag Rocks, the abundance of nesting common eiders (*Somateria mollissima*) on Calf Island is the most significant ornithological observation. At least 43 breeding pairs of eiders nested under staghorn sumac (*Rhus hirta*) at the northern end of Calf Island, which probably represents the largest concentration of breeding common eiders in Boston Harbor. More than 73 pairs of common eiders were documented nesting on the Brewster island cluster, including Little Brewster. The Brewster island cluster supports the southern most breeding population of common eider in the western Atlantic, with the exception of some eiders nesting in the Elizabeth Islands (Paton et al. 2005).

Along with the common eider, the American oystercatcher (*Haematopus palliatus*) is another rare species of concern breeding on the Brewster island cluster. Designated by Partners in Flight as a species of high continental priority and high regional responsibility (Dettmers and Rosenberg 2000), the breeding population numbers from Florida to Nova Scotia on the east coast of North America are estimated at 1,624 oystercatchers. Given their relatively small numbers and inherently low productivity, American oystercatchers are at risk in rapidly changing coastal ecosystems (Davis et al. 2001). American oystercatchers were first documented nesting on the Boston Harbor Islands in 1989 (Veit and Petersen 1989) and 16 nesting pairs were detected during a recent survey in 2002-2003 (Trocki and Paton 2003). The Boston Harbor Islands population is the northern most breeding population in the United States for this priority species. Nesting occurs on the Brewster island cluster, as well as some of the inner harbor islands, but locations are ephemeral with individual birds selecting nesting sites on different islands in different years. Human disturbance has been shown to reduce nesting success for American oystercatchers (Davis et al. 2001).

Wading bird colonies have also been documented on the Brewster island cluster, supporting the breeding of glossy ibis (*Plegadis falcinellus*), snowy egret (*Egretta thula*), great egret (*Casmerodius albus*), and black-crowned night heron (*Nycticorax nycticorax*) and increasing the overall diversity of the island archipelago (Trocki and Paton 2003; Figure 6; Table 2). Migratory shorebirds reach their peak numbers in this region in late July and August and use the intertidal areas of most islands.



Figure 7. Snowy egrets, great egrets, black-crowned night herons, and glossy ibis perch on staghorn sumac on Outer Brewster Island. (Morss Photo)

Table 2. Summary information for the Brewster island cluster. American oystercatcher, common eider, glossy ibis, snowy egret, and black-crowned night heron all nest or forage on these islands.

Island Name	Island Size	Wetland Type (acres)							Priority Species
		Aquatic Bed	Emergent	Mussel Reef	Rocky Shore	Unconsolidated Shore	Scrub Shrub	Forest	
Outer Brewster	20.1	11.0	--	--	8.8	--	--	--	Common Eider, Snowy Egret, Glossy Ibis
Great Brewster	23.9	5.9	0.4	--	4.6	49.6	--	--	Common Eider, American Oystercatchers
Middle Brewster	13.6	6.3	0.1	--	7.0	--	--	--	Common Eider, Black-crowned Night-Heron, American Oystercatcher
Little Brewster	3.1	--	--	7.5	3.0	0.9	--	--	Harbor Seals, Common Eider and wading birds
Green	1.7	13.7	--	--	2.9	--	--	--	Harbor Seals, Common Eider
Calf	22.4	18.3	1.6	--	5.1	2.1	--	--	Harbor Seals, Eider & wading bird nests, American Oystercatchers
Little Calf	<1.0	4.7	--	--	--	--	--	--	
Graves	1.8	3.7	--	--	--	--	--	--	
Shag Rocks	<1.0	8.2	--	--	--	--	--	--	

## Macrolepidoptera and Other Insects

Macrolepidoptera is a member of the Order Lepidoptera, the second-largest Order of the Insects. During 2001 and 2002, 14 islands including Great Brewster, Calf Island, Middle Brewster and Outer Brewster were surveyed for Lepidoptera (moths and butterflies), Odonata (dragonflies and damselflies), and tiger beetles (*Cincindela sp.*), providing significant information on the insect fauna of the Boston Harbor Islands (Mello 2005). A total of 394 macrolepidopteran species and 166 microlepidopteran species were observed nocturnally and an additional 51 species of butterflies, 10 odonates, and 1 tiger beetle were observed during the day. Although the species diversity of the Brewster island cluster was found to be low with 59 Macrolepidoptera species observed on Calf Island, 83 on Great Brewster, 14 on Middle Brewster and 18 on Outer Brewster, the numbers reflect the island biogeographic effects of small island size with the lack of habitat diversity and distance from the mainland (Mello 2005). This view is supported by the greatest diversity of species having been found on the large inner islands, especially World's End in Hingham. However, the overall proliferation of non native species as well as possible light pollution from the city may further explain the lack of diversity (Mello 2005). It is interesting to note that while Paton et al. (2005) recommend protecting staghorn sumac found on the north end of Calf Island as a preferred microhabitat for nesting eiders, Mello (2005) recommends controlling the extensive sumac to encourage the Macrolepidoptera.

An expanded biotic inventory is now underway to enhance our identification and understanding of all taxa that utilize the Boston Harbor Islands. The Harvard University's Department of Entomology within the Museum of Comparative Zoology in collaboration with the National Park Service and supported by the Green Fund, the Stone Foundation, and the National Park Service will initiate an all taxa biological inventory or ATBI focused initially on insects and other invertebrate species. The project will have four major areas of emphasis: 1) organizing the development of an all taxa biological inventory of the islands, to focus on just a few initially, 2) providing for the opportunity to develop and train taxonomists, especially on little known or understood taxa, 3) assisting in the development of an online database of the ATBI's ongoing results with a link to <http://insects.oeb.harvard.edu> and <http://www.BostonIslands.com>, and a public exhibit for the Harvard Museum of Natural History, and 4) developing public education and outreach. This will provide the opportunity of communicating in a field setting an understanding and appreciation of biodiversity, conservation, and the natural history of the Boston Harbor Islands, while exploring relationships among various species and their habitats including web of life concepts, with an eye toward training the next generation of conservation scientists.

## **Acknowledgments**

This report was prepared with the assistance of Charles Roman, Greg Shriver, Bruce Jacobson, Elizabeth Johnson, and Deb DiQuinzio of the National Park Service; Scott LaGreca, Natural History Museum of London; Mark Mellow, Lloyd Center for Environmental Studies; Duncan FitzGerald, Boston University and Nick Howe of Boston University who produced the geomorphic maps of the islands that appear in the appendices; Peter Rosen, Northeastern University; Peter Paton, University of Rhode Island; William Patterson, University of Massachusetts-Amherst; all of whom provided extensive input and review of this document.

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Appendix 1. Species Lists for the Brewster Island Cluster.  
*Note: All species of fungi recorded in this list are lichens.*

<i>Island</i>	<i>Scientific Name</i>	<i>Common Name(s)</i>
<b><u>Calf Island</u></b>		
<b>Bird</b>		
	<i>Agelaius phoeniceus</i>	Red-winged blackbird,
	<i>Corvus brachyrhynchos</i>	American crow, Cuervo americano
	<i>Dendroica petechia</i>	Papuline jaune, yellow warbler
	<i>Dendroica magnolia</i>	Magnolia warbler
	<i>Dendroica striata</i>	Blackpoll warbler
	<i>Wilsonia canadensis</i>	Canada warbler
	<i>Thryothorus ludovicianus</i>	Carolina wren
	<i>Geothlypis trichas</i>	Common yellowthroat
	<i>Setophaga ruticilla</i>	American redstart
	<i>Passerculus sandwichensis</i>	Savannah sparrow
	<i>Cardinalis cardinalis</i>	Northern cardinal
	<i>Carduelis tristis</i>	American goldfinch
	<i>Gavia immer</i>	Common loon
	<i>Calidris pusilla</i>	Semipalmated sandpiper
	<i>Larus atricilla</i>	Laughing gull
	<i>Branta canadensis</i>	Canada goose
	<i>Egretta thula</i>	Garceta pie-dorado, snowy egret
	<i>Haematopus palliatus</i>	American oystercatcher
	<i>Larus argentatus</i>	Goéland argenté, herring gull
	<i>Larus marinus</i>	Goéland marin, greater black-backed gull
	<i>Melospiza melodia</i>	Gorrión cantor, song sparrow
	<i>Hirundo rustica</i>	Barn swallow
	<i>Dumetella carolinensis</i>	Gray catbird
	<i>Nycticorax nycticorax</i>	Black-crowned night heron
	<i>Phalacrocorax auritus</i>	Cormoran à aigrettes, Cormorán orejado, Double-crested cormorant
	<i>Quiscalus quiscula</i>	Common grackle, quiscale bronzé
	<i>Somateria mollissima</i>	Common eider, eider à duvet
	<i>Troglodytes aedon</i>	Chivirín saltapared, house wren
	<i>Tyrannus tyrannus</i>	Eastern kingbird, Tirano dorso negro
<b>Fungi</b>		
	<i>Acarospora fuscata</i>	
	<i>Acarospora smaragdula</i>	
	<i>Aspicilia caesiocinerea</i>	
	<i>Aspicilia cinerea</i>	

*Caloplaca citrina*  
*Caloplaca feracissima*  
*Caloplaca scopularis*  
*Candelariella aurella*  
*Candelariella vitellina*  
*Dimelaena oreina*  
*Lecanora contractula*  
*Lecanora dispersa*  
*Lecanora polytropa*  
*Lecanora saligna*  
*Parmelia sulcata*  
*Physcia millegrana*  
*Physcia stellaris*  
*Physcia subtilis*  
*Rinodina gennarii*  
*Rinodina subminuta*  
*Scoliciosporum umbrinum*  
*Trapelia placodioides*  
*Xanthoria parietina*

## **Insect**

<i>Ancyloxypha numitor</i>	least skipper
<i>Pieris rapae</i>	cabbage butterfly
<i>Spoladea recurvalis</i>	beet webworm
<i>Thaumatopsis pexella</i>	

## **Non-vascular Plant**

<i>Bryum caespitium</i>	dry calcareous bryum moss
<i>Ceratodon purpureus</i>	ceratodon moss
<i>Herzogiella striatella</i>	herzogiella moss
<i>Physcomitrium pyriforme</i>	physcomitrium moss

## **Vascular Plant**

<i>Achillea millefolium</i>	bloodwort, common yarrow, milfoil
<i>Agrostis stolonifera</i>	carpet bentgrass, creeping bent
<i>Alopecurus pratensis</i>	field meadow-foxtail, meadow foxtail
<i>Amaranthus retroflexus</i>	careless weed, Pigweed, redroot amaranth
<i>Anagallis arvensis</i>	pimpernel, scarlet pimpernel
<i>Angelica lucida</i>	seacoast angelica
<i>Anthoxanthum odoratum</i>	sweet vernalgrass
<i>Arctium minus</i>	bardane, beggar's button, burdock, small burdock
<i>Artemisia vulgaris</i>	common wormwood, mugwort
<i>Asclepias syriaca</i>	broadleaf milkweed, common milkweed
<i>Asparagus officinalis</i>	asparagus, garden asparagus, garden-asparagus
<i>Atriplex patula</i>	halberd-leaf orache, spear saltbush

<i>Brassica nigra</i>	black mustard, shortpod mustard
<i>Bromus tectorum</i>	cheat grass, cheatgrass, downy brome military grass, wild oats
<i>Cakile edentula</i>	American searocket
<i>Calystegia sepium</i>	bearbind, devil's guts, hedge bindweed, old man's night cap, wild morning glory
<i>Carex</i>	carex, laïches, rouches, sedge
<i>Carex hormathodes</i>	marsh straw sedge
<i>Cerastium vulgatum</i>	big chickweed, mouseear chickweed
<i>Chenopodium</i>	goosefoot, goosefoot spp.
<i>Chenopodium album</i>	common lambsquarters, white goosefoot
<i>Chenopodium ambrosioides</i>	Mexican tea, Mexican-tea
<i>Cichorium intybus</i>	blue sailors, chicory, coffeeweed
<i>Cicuta maculata</i>	common water hemlock, poison parsnip
<i>Cirsium arvense</i>	Californian thistle, Canada thistle
<i>Cirsium vulgare</i>	bull thistle, common thistle, spear thistle
<i>Cuscuta gronovii</i>	scaldweed
<i>Dactylis glomerata</i>	cocksfoot, orchard grass, orchardgrass
<i>Elymus repens</i>	quackgrass
<i>Festuca ovina</i>	sheep fescue
<i>Festuca rubra</i>	ravine fescue, red fescue
<i>Hieracium canadense</i>	Canadian hawkweed, yellow hawkweed
<i>Humulus japonicus</i>	Japanese hop
<i>Hypericum perforatum</i>	common St Johnswort,
<i>Iris versicolor</i>	harlequin blueflag
<i>Juncus gerardii</i>	saltmarsh rush, saltmeadow rush
<i>Lactuca serriola</i>	China lettuce, prickly lettuce, wild lettuce
<i>Lathyrus japonicus</i>	beach pea
<i>Leontodon autumnalis</i>	fall dandelion
<i>Lepidium latifolium</i>	broad-leaved pepperweed, grass mustard
<i>Limonium carolinianum</i>	Carolina sea-lavender, Carolina sealavender
<i>Linaria vulgaris</i>	butter and eggs, Jacob's ladder, ramsted, wild snapdragon,
<i>Lonicera morrowii</i>	Morrow's honeysuckle
<i>Lycopus americanus</i>	American bugleweed, cut-leaf water-horehound
<i>Lythrum salicaria</i>	purple loosestrife, rainbow weed, salicaire
<i>Nuttallanthus canadensis</i>	Canada toadflax, oldfield toadflax
<i>Onopordum acanthium</i>	cotton thistle, heraldic thistle, Scotch thistle
<i>Phleum pratense</i>	common timothy, timothy
<i>Phragmites australis</i>	common reed
<i>Plantago lanceolata</i>	buckhorn plantain, English plantain

<i>Poa</i>	bluegrass, bluegrass spp.
<i>Poa compressa</i>	Canada bluegrass, flat-stem blue grass
<i>Polygonum aviculare</i>	prostrate knotweed, yard knotweed
<i>Portulaca oleracea</i>	common purslane, duckweed, purslane, pursley, wild portulaca
<i>Ranunculus acris</i>	meadow buttercup, tall buttercup
<i>Ranunculus bulbosus</i>	blister flower, bulbous buttercup
<i>Raphanus raphanistrum</i>	wild radish
<i>Rhus hirta</i>	staghorn sumac
<i>Rosa</i>	rose, wildrose spp.
<i>Rosa rugosa</i>	rugosa rose
<i>Rosa virginiana</i>	Virginia rose
<i>Rubus allegheniensis</i>	Allegheny blackberry
<i>Rubus idaeus</i>	American red raspberry, common red raspberry
<i>Rumex acetosella</i>	common sheep sorrel, field sorrel, red sorrel
<i>Rumex crispus</i>	Curley dock, curly dock, narrowleaf dock
<i>Salix nigra</i>	black willow
<i>Sambucus canadensis</i>	american elder
<i>Schoenoplectus americanus</i>	American bulrush, chairmaker's bulrush
<i>Solanum dulcamara</i>	bitter nightshade, bittersweet nightshade
<i>Solanum nigrum</i>	black nightshade, deadly nightshade
<i>Solidago canadensis</i>	Canada goldenrod, Canadian goldenrod
<i>Solidago sempervirens</i>	seaside goldenrod
<i>Sonchus asper</i>	perennial sowthistle, prickly sowthistle
<i>Sonchus oleraceus</i>	annual sowthistle, common sowthistle
<i>Spartina alterniflora</i>	Atlantic cordgrass, saltmarsh cordgrass
<i>Spartina patens</i>	marsh hay cordgrass, salt meadow cordgrass
<i>Spergularia rubra</i>	purple sandspurry, red sandspurry
<i>Stellaria graminea</i>	grass-leaf starwort, lesser starwort
<i>Suaeda</i>	seepweed
<i>Suaeda linearis</i>	annual seepweed
<i>Suaeda maritima</i>	herbaceous seepweed
<i>Syringa vulgaris</i>	common lilac
<i>Tanacetum vulgare</i>	common tansy, garden tansy, tansy
<i>Teucrium canadense</i>	American germander, Canada germander
<i>Toxicodendron radicans</i>	eastern poison ivy, poison ivy
<i>Trifolium pratense</i>	red clover
<i>Trifolium repens</i>	Dutch clover, ladino clover, white clover
<i>Typha latifolia</i>	broadleaf cattail, cattail, cattail (common)
<i>Urtica dioica</i>	California nettle, slender nettle, stinging nettle

<i>Vicia cracca</i>	bird vetch, cow vetch
<i>Vitis</i>	grape

## Great Brewster Island

### Bird

<i>Agelaius phoeniceus</i>	Carouge à épauettes, Red-winged blackbird
<i>Carduelis tristis</i>	American goldfinch, chardonneret jaune
<i>Corvus brachyrhynchos</i>	American crow, corneille d'Amérique
<i>Dendroica petechia</i>	Chipe amarillo, Paruline jaune, Yellow warbler
<i>Haematopus palliatus</i>	American oystercatcher, Huître d'Amérique, Ostrero americano
<i>Larus argentatus</i>	Gaviota plateada, Goéland argenté, Herring gull
<i>Larus marinus</i>	Goéland marin, Greater black-backed gull
<i>Melospiza melodia</i>	Bruant chanteur, Gorrión cantor, Song sparrow
<i>Quiscalus quiscula</i>	Common grackle, Quiscale bronzé
<i>Somateria mollissima</i>	Common eider, Eider à duvet
<i>Zenaida macroura</i>	Mourning dove, Paloma huilota, Tourterelle triste
<i>Empidonax traillii</i>	Willow flycatcher
<i>Iridoprocne bicolor</i>	Tree swallow
<i>Dumetella carolinensis</i>	Gray catbird
<i>Mimus polyglottos</i>	Northern mockingbird
<i>Sturnus vulgaris</i>	Eastern starling
<i>Thryothorus ludovicianus</i>	Carolina wren
<i>Geothlypis trichas</i>	Common yellowthroat
<i>Setophaga ruticilla</i>	American redstart
<i>Cardinalis cardinalis</i>	Northern cardinal
<i>Icterus galbula</i>	Baltimore oriole
<i>Branta bernicla</i>	Brant
<i>Melanitta nigra</i>	Black scoter
<i>Melanitta deglandi</i>	White-winged scoter
<i>Larus atricilla</i>	Laughing gull
<i>Larus philadelphia</i>	Bonaparte's gull
<i>Anas platyrhynchos</i>	Mallard
<i>Actitis macularia</i>	Spotted sandpiper
<i>Pluvialis squatarola</i>	Black-bellied plover
<i>Charadrius semipalmatus</i>	Semipalmated plover
<i>Numenius phaeopus</i>	Whimbrel
<i>Arenaria interpres</i>	Ruddy turnstone
<i>Calidris alba</i>	Sanderling
<i>Calidris pusilla</i>	Semipalmated sandpiper
<i>Chaetura pelagica</i>	Chimney swift

## Fungi

<i>Picoides pubescens</i>	Downy woodpecker
<i>Colaptes auratus</i>	Northern flicker
<i>Contopus virens</i>	Eastern pewee
<i>Wilsonia canadensis</i>	Canada warbler
<i>Melospiza georgiana</i>	Swamp sparrow

*Acarospora fuscata*  
*Aspicilia cinerea*  
*Caloplaca citrina*  
*Caloplaca feracissima*  
*Candelariella aurella*  
*Cladonia coniocraea*  
*Cladonia humilis*  
*Cladonia peziziformes*  
*Cladonia rei*  
*Dimelaena oreina*  
*Lecanora contractula*  
*Lecanora dispersa*  
*Lecanora hagenii*  
*Lecanora saligna*  
*Lecanora strobilina*  
*Lecanora symmicta*  
*Parmelia sulcata*  
*Physcia adscendens*  
*Physcia millegrana*  
*Physcia stellaris*  
*Rinodina gennarii*  
*Trapeliopsis flexuosa*  
*Verrucaria striatula*  
*Xanthoria elegans*  
*Xanthoria parietina*

## Insect

<i>Agrotis ipsilon</i>	black cutworm, ver-gris noir
<i>Aletia oxygala</i>	
<i>Amphipoea velata</i>	
<i>Anavitrinella pampinaria</i>	cranberry spanworm
<i>Caenurgina crassiuscula</i>	arpenreuse du trèfle, clover looper, grass looper
<i>Catocala unijuga</i>	likenee rougeâtre, oncemarried underwing
<i>Chloroclystis retangulata</i>	
<i>Colias eurytheme</i>	alfalfa caterpillar, coliaide de la luzerne
<i>Colias philodice</i>	clouded sulphur, coliaide du trèfle

<i>Danaus plexippus</i>	monarch butterfly, monarque
<i>Ennomos subsignaria</i>	arpenreuse de l'orme, elm spanworm, snow-white linden
<i>Everes comyntas</i>	eastern tailed-blue
<i>Halysidota tessellaris</i>	banded tussock moth, pale tiger moth
<i>Helotropha reniformis</i>	
<i>Hyphantria cunea</i>	chenille à tente estivale, fall webworm
<i>Idia americalis</i>	American idia
<i>Lacinipolia lorea</i>	
<i>Lacinipolia renigera</i>	bristly cutworm
<i>Leucania insueta</i>	
<i>Lithacodia abidula</i>	
<i>Malacosoma americanum</i>	eastern tent caterpillar, eastern tent caterpillars, livrée d'Amérique
<i>Nephelodes minians</i>	bronzed cutworm, ver-gris bronzé
<i>Orthodes cynica</i>	cynical quaker
<i>Orthonama obstipata</i>	gem
<i>Ostrinia nubilalis</i>	European corn borer, pyrale du maïs
<i>Papilio glaucus</i>	tiger swallowtail
<i>Papilio polyxenes</i>	
<i>Phlogophora iris</i>	
<i>Pieris rapae</i>	cabbage butterfly, imported cabbageworm
<i>Plathypena scabra</i>	green cloverworm
<i>Pseudaletia unipuncta</i>	armyworm, légionnaire uniponctuée
<i>Pyrrharctia isabella</i>	banded woollybear, black-ended bear, isia isabelle
<i>Vanessa atalanta</i>	red admiral, vulcain
<i>Xanthorhoe lacustrata</i>	

## Non-vascular Plant

<i>Brachythecium oxycladon</i>	brachythecium moss
<i>Bryum argenteum</i>	silvergreen bryum moss
<i>Bryum lisae var. cuspidatum</i>	bryum moss
<i>Ceratodon purpureus</i>	ceratodon moss
<i>Weissia controversa</i>	controverial weissia moss

## Vascular Plant

<i>Achillea millefolium</i>	bloodwort, carpenter's weed, milfoil
<i>Agrostis stolonifera</i>	carpet bentgrass, creeping bent, seaside bentgrass
<i>Alopecurus pratensis</i>	field meadow-foxtail, meadow foxtail
<i>Anagallis arvensis</i>	pimpernel, scarlet pimpernel
<i>Anthoxanthum odoratum</i>	sweet vernalgrass
<i>Apocynum androsaemifolium</i>	bitterroot, flytrap dogbane, spreading dogbane

<i>Aquilegia canadensis</i>	American columbine, Colorado columbine
<i>Arenaria serpyllifolia</i>	thymeleaf sandwort
<i>Artemisia vulgaris</i>	common wormwood, mugwort
<i>Asclepias syriaca</i>	broadleaf milkweed, common milkweed
<i>Asparagus officinalis</i>	asparagus, garden asparagus
<i>Aster novi-belgii</i>	New Belgium aster
<i>Atriplex patula</i>	halberd-leaf orache, spear saltbush
<i>Brassica nigra</i>	black mustard, shortpod mustard
<i>Bromus tectorum</i>	cheat grass, cheatgrass, downy brome, early chess
<i>Cakile edentula</i>	American searocket
<i>Calystegia sepium</i>	bearbind, devil's guts, hedge false bindweed, wild morning glory
<i>Carex</i>	Carex, laïches, rouches, sedge species, sedges
<i>Carex spicata</i>	prickly sedge
<i>Celastrus orbiculatus</i>	Asian bittersweet, Asiatic bittersweet, oriental bittersweet
<i>Cerastium vulgatum</i>	big chickweed, mouseear chickweed
<i>Chamaesyce nutans</i>	eyebane, nodding spurge, spotted sandmat
<i>Chenopodium</i>	goosefoot, goosefoot spp.
<i>Chenopodium album</i>	common lambsquarters, lambsquarters
<i>Chenopodium rubrum</i>	red goosefoot
<i>Cichorium intybus</i>	blue sailors, chicory, coffeeweed
<i>Cirsium arvense</i>	Californian thistle, Canada thistle
<i>Coreopsis lanceolata</i>	lance coreopsis, lanceleaf tickseed
<i>Crataegus</i>	aubépines, hawthorn, hawthorns
<i>Cuscuta gronovii</i>	scaldweed
<i>Cyperus</i>	flatsedge, nutgrass
<i>Dactylis glomerata</i>	cocksfoot, orchard grass, orchardgrass
<i>Datura stramonium</i>	Jamestown weed, jimsonweed, mad apple
<i>Daucus carota</i>	bird's nest, Queen Anne's lace, wild carrot
<i>Equisetum arvense</i>	field horsetail, scouring rush, western horsetail
<i>Euthamia graminifolia</i>	flat-top goldentop, flattop goldentop
<i>Festuca rubra</i>	ravine fescue, red fescue
<i>Galium aparine</i>	bedstraw, catchweed bedstraw, cleavers
<i>Helianthus tuberosus</i>	girasole, Jerusalem artichoke, Jerusalem sunflower
<i>Hieracium caespitosum</i>	meadow hawkweed, yellow hawkweed
<i>Hieracium canadense</i>	Canadian hawkweed, yellow hawkweed
<i>Hieracium flagellare</i>	
<i>Hypericum perforatum</i>	common St Johnswort

<i>Iris</i>	iris
<i>Juncus gerardii</i>	saltmarsh rush, saltmeadow rush
<i>Juniperus virginiana</i>	eastern red cedar
<i>Lathyrus japonicus</i>	beach pea
<i>Lepidium campestre</i>	cream-anther field pepperwort, field pepperweed
<i>Lepidium latifolium</i>	broad-leaved pepperweed, broadleaf pepperweed
<i>Lepidium virginicum</i>	peppergrass, poorman pepperweed
<i>Leucanthemum vulgare</i>	ox-eye daisy, oxeye daisy, oxeyedaisy
<i>Linaria vulgaris</i>	butter and eggs, butterandeggs, flaxweed
<i>Linum usitatissimum</i>	common flax, cultivated flax
<i>Lonicera morrowii</i>	Morrow's honeysuckle
<i>Malus pumila</i>	paradise apple
<i>Medicago lupulina</i>	black medic, black medic clover, black medick
<i>Melilotus alba</i>	white sweet clover
<i>Morella pensylvanica</i>	northern bayberry
<i>Phleum pratense</i>	common timothy, timothy
<i>Phragmites australis</i>	common reed
<i>Pinus resinosa</i>	norway pine, red pine
<i>Plantago lanceolata</i>	buckhorn plantain, English plantain
<i>Plantago major</i>	broadleaf plantain, buckhorn plantain
<i>Poa compressa</i>	Canada bluegrass, flat-stem blue grass
<i>Polygonum persicaria</i>	lady's-thumb, ladysthumb, ladysthumb smartweed
<i>Populus alba</i>	white poplar
<i>Populus tremuloides</i>	quaking aspen
<i>Portulaca oleracea</i>	akulikuli-kula, common purslane, duckweed
<i>Potentilla argentea</i>	silver cinquefoil, silver-leaf cinquefoil
<i>Potentilla recta</i>	roughfruit cinquefoil, sulfur (or erect) cinquefoil
<i>Potentilla simplex</i>	common cinquefoil, oldfield cinquefoil, oldfield spreading cinquefoil
<i>Prunus serotina</i>	black cherry, black chokecherry
<i>Ranunculus acris</i>	meadow buttercup, tall buttercup
<i>Ranunculus bulbosus</i>	blister flower, bulbous buttercup, bulbous crowfoot
<i>Raphanus raphanistrum</i>	wild radish
<i>Rhus hirta</i>	staghorn sumac
<i>Rosa multiflora</i>	multiflora rose
<i>Rosa rugosa</i>	rugosa rose
<i>Rosa virginiana</i>	Virginia rose
<i>Rubus idaeus</i>	American red raspberry, common red raspberry
<i>Rubus laciniatus</i>	cut-leaved blackberry, cutleaf blackberry

<i>Rumex acetosella</i>	common sheep sorrel, field sorrel, red sorrel
<i>Rumex crispus</i>	curley dock, curly dock, narrowleaf dock, sour dock
<i>Salsola kali</i>	prickly Russian thistle, Russian thistle, tumbleweed
<i>Solanum dulcamara</i>	bitter nightshade, bittersweet nightshade, blue nightshade
<i>Solanum nigrum</i>	black nightshade, deadly nightshade, garden nightshade
<i>Solidago rugosa</i>	wrinkleleaf goldenrod
<i>Solidago sempervirens</i>	seaside goldenrod
<i>Sonchus arvensis</i>	creeping sowthistle, field sowthistle, field sow-thistle
<i>Sonchus asper</i>	perennial sowthistle, prickly sowthistle, spiny sowthistle
<i>Sonchus oleraceus</i>	annual sowthistle, common sowthistle, common sow-thistle,
<i>Spiraea tomentosa</i>	steeplebush
<i>Suaeda linearis</i>	annual seepweed
<i>Symphoricarpos albus</i>	common snowberry, snowberry (common)
<i>Taraxacum officinale</i>	blowball, common dandelion, dandelion, faceclock
<i>Thinopyrum pycnanthum</i>	tick quackgrass
<i>Toxicodendron radicans</i>	eastern poison ivy, poison ivy, poisonivy
<i>Tragopogon pratensis</i>	Jack-go-to-bed-at-noon, meadow salsify
<i>Trifolium arvense</i>	hairy clover, hare's foot clover, oldfield clover
<i>Trifolium aureum</i>	golden clover
<i>Trifolium pratense</i>	red clover
<i>Trifolium repens</i>	Dutch clover, ladino clover, white clover
<i>Tussilago farfara</i>	colts foot, coltsfoot
<i>Ulmus rubra</i>	slippery elm
<i>Verbascum thapsus</i>	big taper, common mullein, flannel mullein
<i>Vitis</i>	grape
<i>Xanthium echinatum</i>	

## **Green Island**

### **Bird**

<i>Haematopus palliatus</i>	American oystercatcher, Huître d'Amérique
<i>Larus argentatus</i>	Gaviota plateada, Goéland argenté, Herring gull
<i>Larus marinus</i>	Goéland marin, Great black-backed gull
<i>Somateria mollissima</i>	Common eider, Eider à duvet
<i>Branta bernicla</i>	Brant
<i>Calidris maritima</i>	Purple sandpiper
<i>Oceanites oceanicus</i>	Wilson's storm petrel

## Fungi

*Caloplaca scopularis*  
*Caloplaca verruculifera*  
*Lecanora contractula*  
*Rinodina gennarii*

## Little Brewster Island

### Fungi

*Acarospora fuscata*  
*Acarospora smaragdula*  
*Aspicilia cinerea*  
*Caloplaca citrina*  
*Caloplaca scopularis*  
*Caloplaca verruculifera*  
*Candelariella aurella*  
*Cladonia apodocarpa*  
*Cladonia furcata*  
*Cladonia macilentata*  
*Cladonia sobolescens*  
*Cladonia strepsilis*  
*Dimelaena oreina*  
*Diplotomma alboatrum*  
*Lecanora contractula*  
*Lecanora dispersa*  
*Lecanora muralis*  
*Lecidea tessellata*  
*Parmelia sulcata*  
*Physcia adscendens*  
*Physcia millegrana*  
*Rinodina gennarii*  
*Scoliciosporum umbrinum*  
*Xanthoria elegans*  
*Xanthoria parietina*

### Vascular Plant

<i>Achillea millefolium</i>	bloodwort, carpenter's weed, common yarrow
<i>Ambrosia artemisiifolia</i>	annual ragweed, common ragweed, low ragweed
<i>Anagallis arvensis</i>	pimpernel, scarlet pimpernel
<i>Artemisia vulgaris</i>	common wormwood, mugwort
<i>Atriplex patula</i>	halberd-leaf orache, spear saltbush, spear saltweed
<i>Bromus tectorum</i>	cheat grass, cheatgrass, downy brome, early chess
<i>Cakile edentula</i>	American searocket

<i>Carex</i>	carex, laïches, rouches, sedge, sedge species
<i>Cerastium vulgatum</i>	big chickweed, mouseear chickweed
<i>Chamaesyce nutans</i>	eyebane, nodding spurge, spotted sandmat
<i>Cichorium intybus</i>	blue sailors, chicory, coffeeweed, Common chicory
<i>Festuca rubra</i>	ravine fescue, red fescue
<i>Juncus gerardii</i>	saltmarsh rush, saltmeadow rush
<i>Leontodon autumnalis</i>	fall dandelion
<i>Lepidium virginicum</i>	peppergrass, poorman pepperweed
<i>Lolium perenne</i>	italian ryegrass, perennial rye grass
<i>Malva neglecta</i>	buttonweed, cheeseplant, cheeseweed
<i>Medicago lupulina</i>	black medic, black medic clover, black medick
<i>Oxalis stricta</i>	common yellow oxalis, erect woodsorrel
	sourgrass
<i>Plantago lanceolata</i>	buckhorn plantain, English plantain, lanceleaf, Indianwheat
<i>Plantago major</i>	broadleaf plantain, buckhorn plantain
<i>Plantago regelii</i>	
<i>Poa</i>	bluegrass, bluegrass spp.
<i>Poa annua</i>	annual blue grass, annual bluegrass, walkgrass
<i>Poa compressa</i>	Canada bluegrass, flat-stem blue grass
<i>Polygonum aviculare</i>	prostrate knotweed, yard knotweed
<i>Polygonum convolvulus</i>	black bindweed, black-bindweed
<i>Portulaca oleracea</i>	common purslane, duckweed, garden purslane
<i>Potentilla argentea</i>	silver cinquefoil, silver-leaf cinquefoil
<i>Rosa virginiana</i>	Virginia rose
<i>Rumex acetosella</i>	common sheep sorrel, field sorrel, red sorrel
<i>Rumex crispus</i>	curley dock, curly dock, narrowleaf dock, sour dock, yellow dock
<i>Solanum dulcamara</i>	bitter nightshade, bittersweet nightshade, blue nightshade
<i>Solanum nigrum</i>	black nightshade, deadly nightshade, garden nightshade
<i>Solidago sempervirens</i>	seaside goldenrod
<i>Sonchus oleraceus</i>	annual sowthistle, common sowthistle, common sow-thistle
<i>Spergularia salina</i>	salt sandspurry
<i>Trifolium arvense</i>	hairy clover, hare's foot clover, oldfield clover, rabbitfoot clover
<i>Trifolium repens</i>	Dutch clover, ladino clover, white clover

## Little Calf Island

### Bird

<i>Larus argentatus</i>	Gaviota plateada, Geland argenté, Herring gull
<i>Larus marinus</i>	Goéland marin, Greater black-backed gull
<i>Somateria mollissima</i>	Common eider, Eider à duvet
<i>Phalacrocorax auritus</i>	Double-crested cormorant
<i>Arenaria interpres</i>	Ruddy turnstone
<i>Mergus serrator</i>	Red-breasted merganser

### Fungi

*Verrucaria striatula*

### Vascular Plant

<i>Artemisia vulgaris</i>	common wormwood, mugwort
<i>Chenopodium album</i>	common lambsquarters, lambsquarters
<i>Malva neglecta</i>	buttonweed, cheeseplant, cheeseweed

## Middle Brewster Island

### Bird

<i>Haematopus palliatus</i>	American oystercatcher, Huïtrier d'Amérique
<i>Larus argentatus</i>	Gaviota plateada, Goéland argenté, Herring gull
<i>Larus marinus</i>	Goéland marin, Greater black-backed gull
<i>Somateria mollissima</i>	Common eider, Eider à duvet
<i>Arenaria interpres</i>	Ruddy turnstone
<i>Calidris pusilla</i>	Semipalmated sandpiper
<i>Morus bassanus</i>	Northern gannet
<i>Oceanites oceanicus</i>	Wilson's storm petrel

### Fungi

*Acarospora fuscata*  
*Aspicilia caesiocinerea*  
*Aspicilia cinerea*  
*Caloplaca citrina*  
*Caloplaca scopularis*  
*Candelariella aurella*  
*Candelariella vitellina*  
*Dimelaena oreina*  
*Lecanora contractula*  
*Lecanora dispersa*  
*Lecanora muralis*  
*Physcia adscendens*  
*Physcia millegrana*  
*Physcia subtilis*  
*Rinodina gennarii*

## Insect

*Verrucaria striatula*  
*Xanthoria parietina*

*Agroperina dubitans*  
*Amphipyra pyramidoides*

copper underwing, noctuelle cuivrée, rearhumped caterpillar

*Caenurgina crassiuscula*  
*Nephelodes minians*

arpenreuse du trèfle, clover looper, grass looper  
bronzed cutworm, ver-gris bronzé

*Ostrinia nubilalis*

European corn borer, pyrale du maïs

*Pieris rapae*

cabbage butterfly, imported cabbageworm

*Pseudaletia unipuncta*

armyworm, légionnaire uniponctuée

*Vanessa atalanta*

red admiral, vulcain

## Non-vascular Plant

*Ceratodon purpureus*

ceratodon moss

## Vascular Plant

*Alopecurus pratensis*

field meadow-foxtail, meadow foxtail

*Arctium minus*

bardane, beggar's button, burdock

*Argentina anserina*

silverweed cinquefoil

*Artemisia vulgaris*

common wormwood, mugwort

*Atriplex patula*

halberd-leaf orache, spear saltbush, spear saltweed

*Brassica nigra*

black mustard, shortpod mustard

*Bromus tectorum*

cheat grass, cheatgrass, downy brome, early chess

*Calystegia sepium*

bearbind, devil's guts, hedge bindweed, hedge false bindweed

*Chenopodium album*

common lambsquarters, lambsquarters, lambsquarters

*Chenopodium rubrum*

red goosefoot

*Cirsium arvense*

Californian thistle, Canada thistle, Canadian thistle

*Cirsium vulgare*

bull thistle, common thistle, spear thistle

*Cuscuta gronovii*

scaldweed

*Dactylis glomerata*

cocksfoot, orchard grass, orchardgrass

*Datura stramonium*

Jamestown weed, jimsonweed, mad apple, moonflower

*Elymus repens*

quackgrass

*Humulus japonicus*

Japanese hop

*Impatiens capensis*

jewelweed, spotted touch-me-not

*Lycopus americanus*

American bugleweed, American water horehound

*Malva neglecta*

buttonweed, cheeseplant, cheeseweed

*Onopordum acanthium*

cotton thistle, heraldic thistle, Scotch cotton thistle

*Phragmites australis*

common reed

*Phytolacca americana*

American pokeweed, common pokeweed, inkberry, phytolaque

*Polygonum aviculare*

prostrate knotweed, yard knotweed

<i>Polygonum lapathifolium</i>	curltop ladythumb, curlytop knotweed
<i>Portulaca oleracea</i>	akulikuli-kula, common purslane, duckweed
<i>Rhus hirta</i>	staghorn sumac
<i>Rubus</i>	blackberry, brambles, framboises, ronces
<i>Rubus pensilvanicus</i>	Pennsylvania blackberry
<i>Rumex crispus</i>	curly dock, narrowleaf dock, sour dock
<i>Rumex salicifolius</i>	willow dock
<i>Sambucus canadensis</i>	American elder
<i>Solanum dulcamara</i>	bitter nightshade, bittersweet nightshade, blue nightshade
<i>Solanum nigrum</i>	black nightshade, deadly nightshade, garden nightshade
<i>Solidago sempervirens</i>	seaside goldenrod
<i>Syringa vulgaris</i>	common lilac
<i>Teucrium canadense</i>	American germander, Canada germander
<i>Trifolium pratense</i>	red clover
<i>Typha latifolia</i>	broadleaf cattail, cattail, cattail (common)
<i>Ulmus pumila</i>	Chinese elm, Siberian elm
<i>Urtica dioica</i>	California nettle, slender nettle, stinging nettle, tall nettle
<i>Verbascum thapsus</i>	big taper, common mullein, flannel mullein, flannel plant

## **Outer Brewster Island**

### **Bird**

<i>Larus argentatus</i>	Gaviota plateada, Goéland argenté, Herring gull
<i>Larus marinus</i>	Goéland marin, Greater black-backed gull
<i>Somateria mollissima</i>	Common eider, Eider à duvet
<i>Calidris pusilla</i>	Semipalmated sandpiper
<i>Morus bassanus</i>	Northern gannet
<i>Oceanites oceanicus</i>	Wilson's storm petrel
<i>Geothlypis trichas</i>	Common yellowthroat
<i>Phalacrocorax auritus</i>	Double-crested cormorant
<i>Casmerodius albus</i>	Great egret
<i>Egretta thula</i>	Snowy egret
<i>Nycticorax nycticorax</i>	Black-crowned night heron
<i>Plegadis falcinellus</i>	Glossy ibis
<i>Branta canadensis</i>	Canada goose
<i>Anas platyrhynchos</i>	Mallard
<i>Actitis macularia</i>	Spotted sandpiper
<i>Corvus brachyrhynchos</i>	American crow
<i>Hirundo rustica</i>	Barn swallow
<i>Dumetella carolinensis</i>	Gray catbird

## Fungi

<i>Mergus serrator</i>	Red-breasted merganser
<i>Alca torda</i>	Razorbill
<i>Cepphus grylle</i>	Black guillemot

*Acarospora fuscata*  
*Caloplaca citrina*  
*Caloplaca scopularis*  
*Caloplaca verruculifera*  
*Candelariella aurella*  
*Candelariella vitellina*  
*Cladonia humilis*  
*Dimelaena oreina*  
*Lecanora contractula*  
*Lecanora dispersa*  
*Lecanora muralis*  
*Lecanora saligna*  
*Lecanora symmicta*  
*Parmelia sulcata*  
*Physcia adscendens*  
*Physcia millegrana*  
*Physcia stellaris*  
*Physcia subtilis*  
*Pyrrhospora varians*  
*Rinodina gennarii*  
*Scoliciosporum umbrinum*  
*Trapeliopsis flexuosa*  
*Verrucaria striatula*  
*Xanthoria parietina*

## Insect

<i>Danaus plexippus</i>	monarch butterfly, monarch
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## Non-vascular Plant

<i>Brachythecium oxycladon</i>	brachythecium moss
<i>Bryum argenteum</i>	silvergreen bryum moss
<i>Bryum capillare</i>	bryum moss
<i>Ceratodon purpureus</i>	ceratodon moss
<i>Leptodictyum trichopodium</i>	
<i>Plagiomnium cuspidatum</i>	toothed plagiomnium moss

## Vascular Plant

<i>Achillea millefolium</i>	bloodwort, carpenter's weed, common yarrow milfoil, plumajillo, western yarrow
<i>Agrostis</i>	bentgrass
<i>Anagallis arvensis</i>	pimpernel, scarlet pimpernel

<i>Anthoxanthum odoratum</i>	sweet vernalgrass
<i>Apios americana</i>	apios americana, groundnut, potato bean
<i>Arctium minus</i>	bardane, beggar's button, burdock, common
<i>Artemisia vulgaris</i>	common wormwood, mugwort
<i>Asclepias syriaca</i>	broadleaf milkweed, common milkweed
<i>Barbarea vulgaris</i>	garden yellow rocket, garden yellowrocket, winter cress
<i>Bidens frondosa</i>	bur marigold, devils beggartick, sticktight
<i>Brassica nigra</i>	black mustard, shortpod mustard
<i>Bromus tectorum</i>	cheat grass, cheatgrass, downy brome
<i>Cakile edentula</i>	American searocket
<i>Chenopodium album</i>	common lambsquarters, lambsquarters, lambsquarters goosefoot
<i>Cichorium intybus</i>	blue sailors, chicory, coffeeweed, Common chicory
<i>Cirsium arvense</i>	Californian thistle, Canada thistle, Canadian thistle
<i>Crataegus</i>	aubépines, hawthorn, hawthorns
<i>Dactylis glomerata</i>	cocksfoot, orchard grass, orchardgrass
<i>Daucus carota</i>	bird's nest, Queen Anne's lace, wild carrot
<i>Dianthus armeria</i>	Deptford pink, Deptford's pink
<i>Epilobium</i>	willow weed, willowherb, willowweed
<i>Epilobium hirsutum</i>	codlins and cream, hairy willow herb
<i>Erigeron strigosus</i>	daisy Fleabane, prairie fleabane, rough fleabane
<i>Euthamia tenuifolia</i>	slender goldentop
<i>Festuca rubra</i>	ravine fescue, red fescue
<i>Hieracium canadense</i>	Canadian hawkweed, yellow hawkweed
<i>Holcus lanatus</i>	common velvetgrass, velvetgrass, Yorkshire fog
<i>Impatiens capensis</i>	jewelweed, spotted touch-me-not
<i>Juncus tenuis</i>	field rush, path rush, poverty rush, slender rush
<i>Lepidium</i>	pepperweed
<i>Leucanthemum vulgare</i>	ox-eye daisy, oxeye daisy, oxeyedaisy
<i>Linaria vulgaris</i>	butter and eggs, butterandeggs, flaxweed
<i>Lycopus americanus</i>	American bugleweed, cut-leaf water-horehound
<i>Malus pumila</i>	paradise apple
<i>Melilotus officinalis</i>	yellow sweet-clover, yellow sweetclover
<i>Nepeta cataria</i>	catmint, catnip, catwort, field balm
<i>Onopordum acanthium</i>	cotton thistle, heraldic thistle, Scotch cotton thistle
<i>Panicum</i>	low panicum sp, panicgrass, panicum
<i>Parthenocissus quinquefolia</i>	American ivy, fiveleaved ivy, Virginia creeper
<i>Phalaris arundinacea</i>	reed canary grass, reed canarygrass
<i>Phleum pratense</i>	common timothy, timothy
<i>Phytolacca americana</i>	American pokeweed, common pokeweed, inkberry
<i>Plantago lanceolata</i>	buckhorn plantain, English plantain, ribwort

<i>Plantago major</i>	broadleaf plantain, buckhorn plantain
<i>Poa compressa</i>	Canada bluegrass, flat-stem blue grass
<i>Polygonum</i>	knotweed, smartweed species
<i>Polygonum convolvulus</i>	black bindweed, black-bindweed buckwheat
<i>Polygonum lapathifolium</i>	curltop lady's thumb, curlytop knotweed
<i>Populus tremuloides</i>	quaking aspen
<i>Portulaca oleracea</i>	akulikuli-kula, common purslane, duckweed, garden purslane
<i>Potentilla recta</i>	roughfruit cinquefoil, sulfur (or erect) cinquefoil, sulfur cinquefoil
<i>Prunus serotina</i>	black cherry, black chokecherry
<i>Ranunculus acris</i>	meadow buttercup, tall buttercup
<i>Ranunculus bulbosus</i>	blister flower, bulbous buttercup, bulbous crowfoot
<i>Rhus hirta</i>	staghorn sumac
<i>Rosa multiflora</i>	multiflora rose
<i>Rosa rugosa</i>	rugosa rose
<i>Rubus</i>	blackberry, brambles, framboises, ronces
<i>Rubus hispidus</i>	bristly dewberry
<i>Rubus idaeus</i>	American red raspberry, common red raspberry
<i>Rubus laciniatus</i>	cut-leaved blackberry, cutleaf blackberry
<i>Rumex acetosella</i>	common sheep sorrel, field sorrel, red sorrel, red sorrel, sheep sorrel
<i>Rumex crispus</i>	curly dock, narrowleaf dock, sour dock, yellow dock
<i>Salix bebbiana</i>	bebb willow, Bebb's willow, gray willow
<i>Sambucus canadensis</i>	American elder
<i>Solanum dulcamara</i>	bitter nightshade, bittersweet nightshade, blue nightshade
<i>Solidago sempervirens</i>	seaside goldenrod
<i>Sonchus arvensis</i>	creeping sowthistle, field sowthistle, field sow-thistle
<i>Sonchus asper</i>	perennial sowthistle, prickly sowthistle, spiny sowthistle, spiny-leaf sow-thistle
<i>Sonchus oleraceus</i>	annual sowthistle, common sowthistle, common sow-thistle
<i>Spiraea latifolia</i>	meadow-sweet
<i>Tanacetum vulgare</i>	common tansy, garden tansy, tansy
<i>Taraxacum officinale</i>	blowball, common dandelion, dandelion, faceclock
<i>Teucrium canadense</i>	American germander, Canada germander
<i>Toxicodendron radicans</i>	eastern poison ivy, poison ivy
<i>Tragopogon pratensis</i>	Jack-go-to-bed-at-noon, meadow salsify
<i>Trifolium pratense</i>	red clover
<i>Ulmus</i>	elm

*Urtica dioica*  
*Verbascum thapsus*  
*Vicia cracca*  
*Xanthium echinatum*

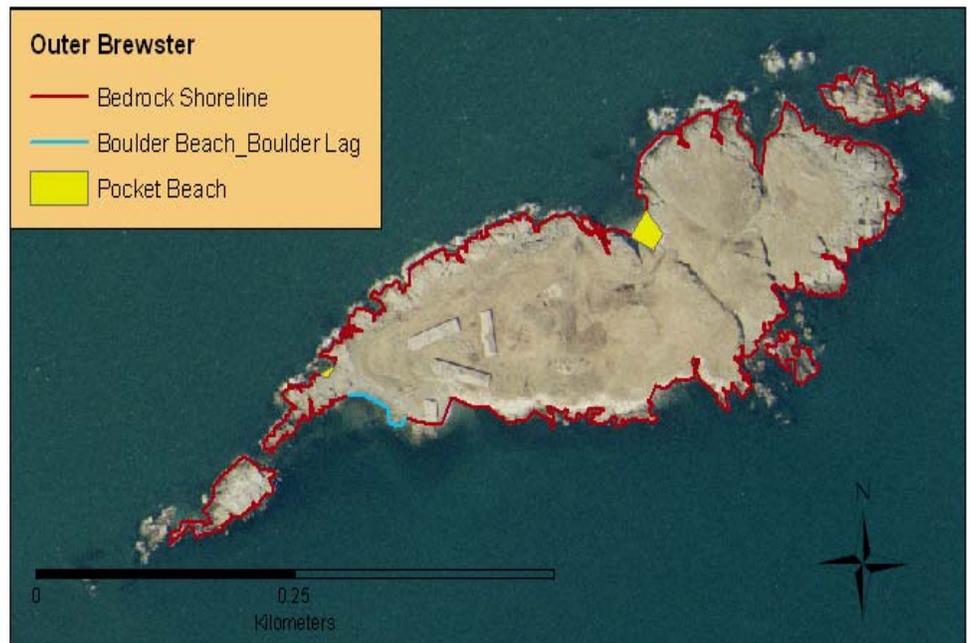
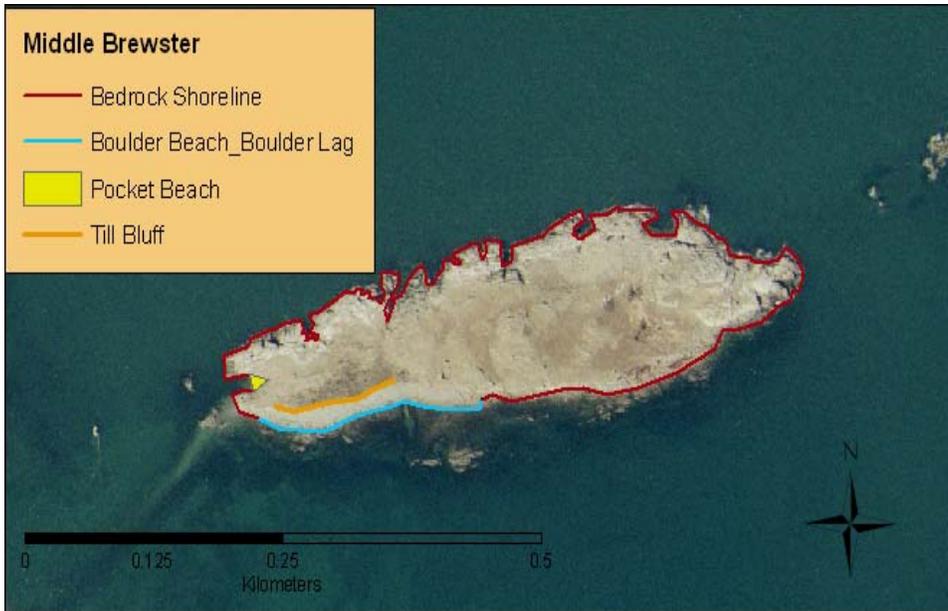
California nettle, slender nettle, stinging nettle  
big taper, common mullein, flannel mullein  
bird vetch, cow vetch

## **The Graves**

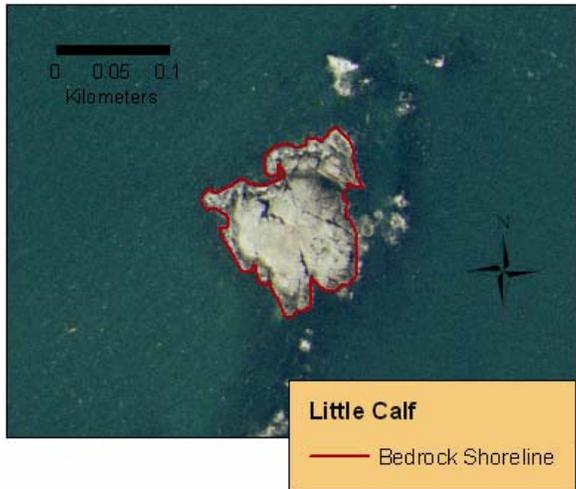
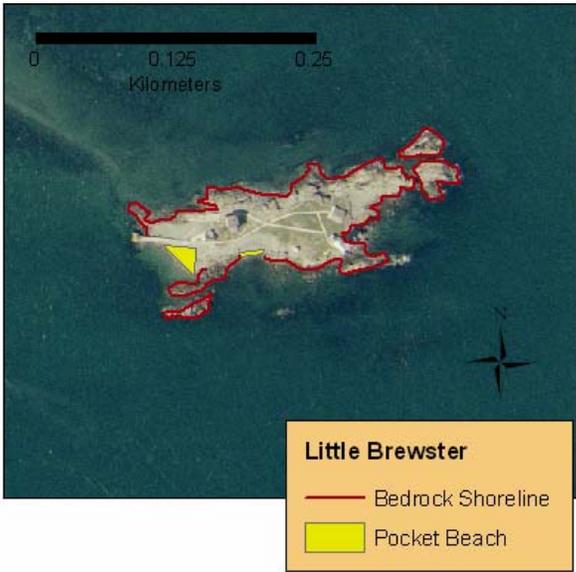
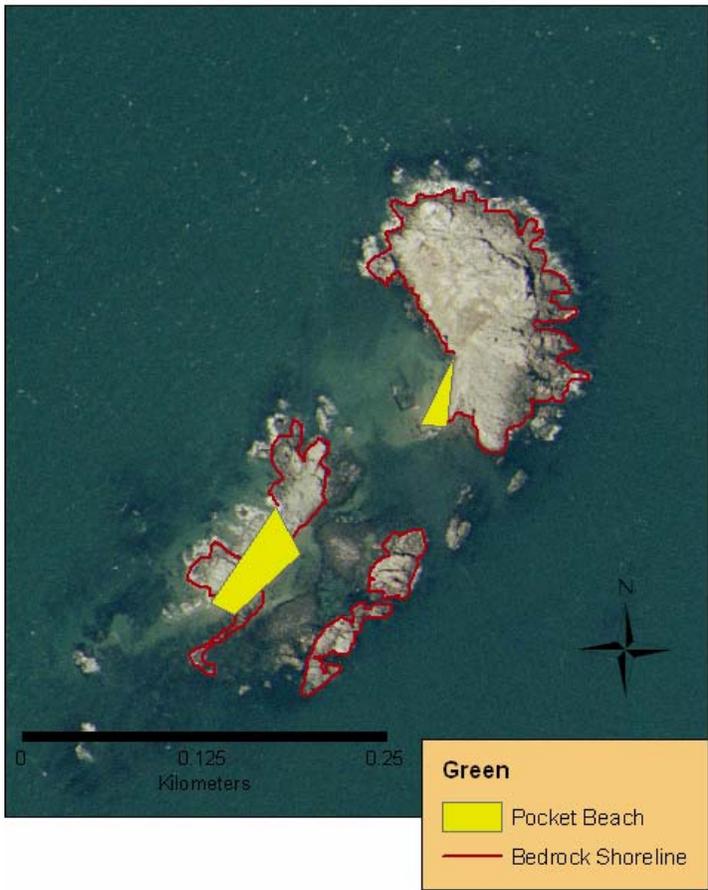
### **Fungi**

*Caloplaca scopularis*  
*Caloplaca verruculifera*  
*Lecanora contractula*  
*Rinodina gennarii*  
*Verrucaria striatula*

Appendix 2. Geomorphic Maps of Middle Brewster and Outer Brewster Islands



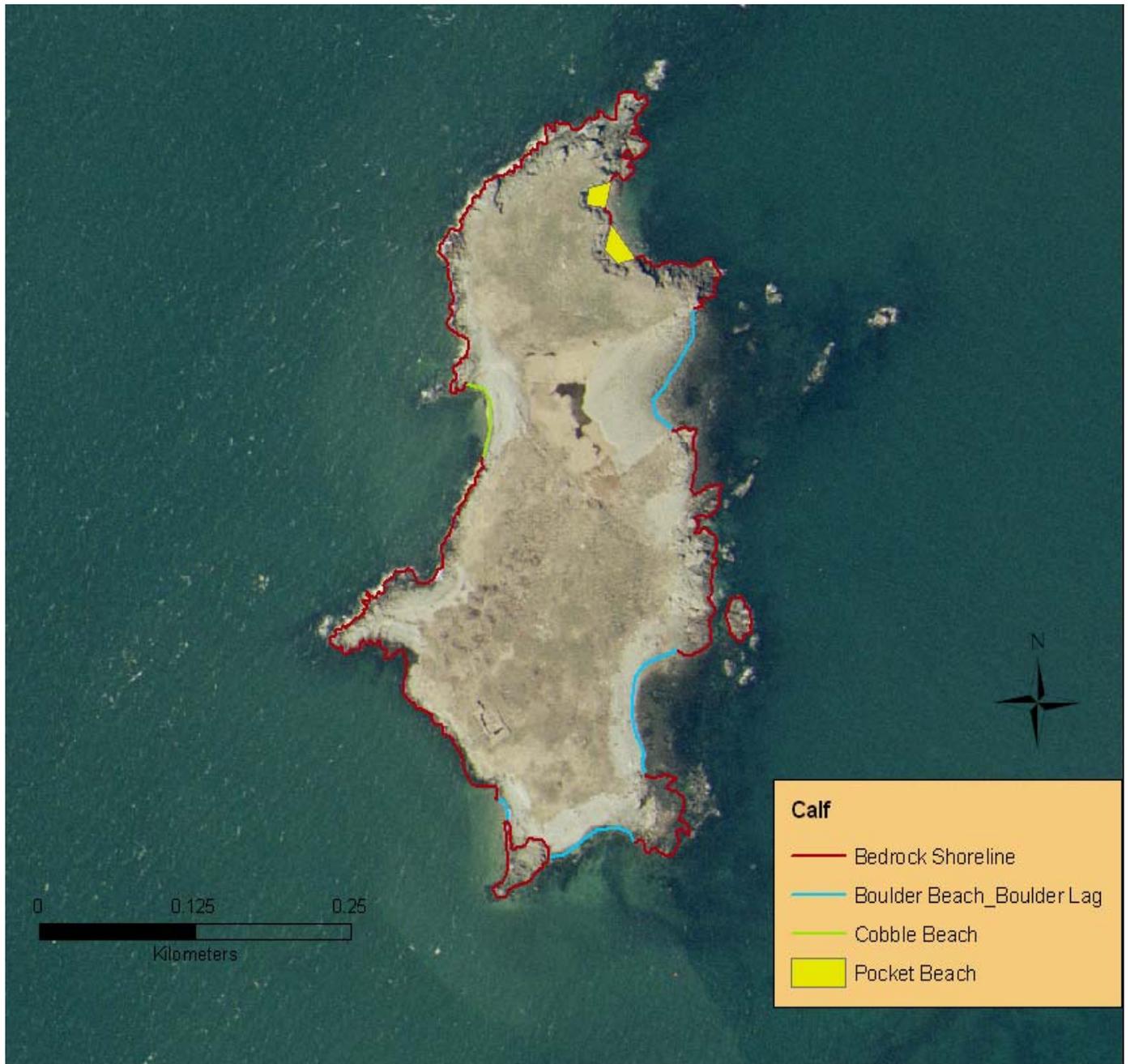
Appendix 3. Geomorphic Maps of Green, Little Brewster, and Little Calf Islands



Appendix 4. Geomorphic Map of Great Brewster Island



Appendix 5. Geomorphic Map of Calf Island





As the nation's primary conservation agency, the Department of the Interior has responsibility for most of our nationally owned public land and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

**National Park Service**  
**U.S. Department of the Interior**



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**Northeast Region**  
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